

Claims

[c1] We claim as our invention:

1. A golf club head comprising:

a club head body having a front face with a recess therein;

an insert disposed within the recess, the insert comprising a body with an exterior surface, an interior surface and a perimeter defining the thickness of the body, the insert composed of a thermoplastic polyurethane material formed from a polytetramethylene ether glycol terminated hexamethylene diisocyanate prepolymer and a 1, 4 butane diol, wherein the insert has a Shore D hardness ranging from 50 to 65, and the insert has a thickness ranging from 0.125 inch to 0.500 inch.

[c2] 2. The golf club head according to claim 1 wherein the insert has a thickness ranging from 0.188 inch to 0.200 inch.

[c3] 3. The golf club head according to claim 1 wherein the insert has an ultraviolet light stability of less than 1% after an exposure time of 48 hours.

[c4] 4. The golf club head according to claim 1 further com-

prising an epoxy adhesive applied to the interior surface of the insert to attach the insert to the golf club head.

- [c5] 5. The golf club head according to claim 1 further comprising a plurality of tabs located on the perimeter of the insert wherein each of the plurality of tabs is compressible, and each of the plurality of tabs has a straight portion and a curved portion, the straight portion disposed between the curved portion and the perimeter, and the curved portion extending further than the straight portion to define an undercut between the curved portion and the perimeter.
- [c6] 6. The golf club head according to claim 1 wherein the golf club head is a putter-type head.
- [c7] 7. The golf club head according to claim 1 wherein the insert has a trapezoidal shape.
- [c8] 8. The golf club head according to claim 1 wherein the depth of the recess is greater than the thickness of the insert.
- [c9] 9. The golf club head according to claim 1 wherein the insert is between 10 to 25 percent of the volume of the club head.
- [c10] 10. The golf club head according to claim 1 wherein the

insert is between 1 to 5 percent of the mass of the club head.

[c11] 11. The golf club head according to claim 1 wherein the insert is between 55 to 75 percent of the area of the face of the club head.

[c12] 12. The golf club head according to claim 1 wherein the golf club head is an iron-type head.

[c13] 13. The golf club head according to claim 1 wherein the golf club head is a wood-type head.

[c14] 14. A putter-type club head comprising:
a club head body comprising a front face, a toe to one side of the front face and a heel to the other side of the front face, and a sole, the front face having a recess therein, the recess defined by a frontal recess wall and an edge wall substantially perpendicular to the frontal recess wall, the edge wall defining the depth and area of the recess;
an insert disposed within the recess, the insert comprising a body with an exterior surface, an interior surface and a perimeter defining the thickness of the body, the perimeter having a plurality of integral tabs extending therefrom that engage the edge wall of the club head body, each of the plurality of integral tabs spaced a pre-

determined distance from each other thereby defining openings between the integral tabs, the insert composed of a thermoplastic polyurethane material formed from a polytetramethylene ether glycol terminated hexamethylene diisocyanate prepolymer and a 1, 4 butane diol, wherein the insert has a Shore D hardness ranging from 50 to 65, and the insert has a change in ultraviolet light stability of less than 1% after an exposure time of 48 hours; and
an adhesive disposed within the openings between the integral tabs.

- [c15] 15. A putter-type club head comprising:
a club head body comprising a front face, a toe to one side of the front face and a heel to the other side of the front face, and a sole, the front face having a recess therein, the recess defined by a frontal recess wall and an edge wall substantially perpendicular to the frontal recess wall, the edge wall defining the depth and area of the recess;
an insert disposed within the recess, the insert comprising a body with an exterior surface, an interior surface and a perimeter defining the thickness of the body, the perimeter having a plurality of integral tabs extending therefrom that engage the edge wall of the club head body, each of the plurality of integral tabs spaced a pre-

determined distance from each other thereby defining openings between the integral tabs, the insert composed of a thermoplastic polyurethane material formed from a polytetramethylene ether glycol terminated hexamethylene diisocyanate prepolymer having a NCO group content of 8.0% to 12.0%, and a 1, 4 butane diol, wherein the insert has a Shore D hardness ranging from 50 to 65; and
an adhesive disposed within the openings between the integral tabs.

[c16] 16. The putter-type golf club head according to claim 15 wherein the NCO group content of the polytetramethylene ether glycol terminated hexamethylene diisocyanate prepolymer is 10% to 11.5%.

[c17] 17. The putter-type club head according to claim 15 wherein the insert has a change in ultraviolet light stability of less than 0.2% after an exposure time of 48 hours.

[c18] 18. The putter-type club head according to claim 15 wherein the insert has a heat deflection less than 1% after loading of 14 pounds per square inch at a temperature of 200⁰F for two hours.